Chapter 22
Big Data in Driving Greener Social Welfare and Sustainable Environmental Management

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ABSTRACT

The emergence of big data (BD) has opened up new opportunities for addressing social and environmental challenges. This chapter examines the potential of BD to drive green social welfare and sustainable environmental management. The chapter highlights how big data can be used to develop new approaches for monitoring and managing natural resources and addressing social issues such as poverty and inequality. It explores how big data can be used to promote sustainable development, from enhancing resource efficiency to improving disaster management. The chapter also discusses challenges associated with using big data for social welfare and sustainable development, including privacy concerns and improved data quality. Ultimately, the chapter concludes that big data has the potential to transform our approach to sustainable development but that a coordinated effort is required to ensure that it is used effectively and responsibly.

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1. INTRODUCTION

The quotes deficit the power of big data. The developments in digital technology have enabled the gathering of vast amounts of data on people's behaviors and preferences, primarily through social media and online activities. As a result, tremendous amounts of digitized trace data have accumulated. This has led to the development of methods for analyzing this data, which has become a lucrative enterprise. However, concerns about privacy and the potential misuse of personal information have also arisen, leading to calls for increased regulation and transparency in data collection and use.

The large amount of data collected on individuals through digital means has numerous practical applications in different sectors. Advertisers, insurers, and bankers utilize this data to improve their services and gain market insights. The concept of "big data" is used to describe the process of managing and analyzing vast amounts of data. There isn't a universally accepted definition, and most people concur that big data refers to extremely vast and complex data collections that need specialized analysis and processing methods and technology.

Data-intensive science is represented by the branch of big data known as scientific big data, which has traits including complexity, comprehensiveness, global reach, and strong information and communication technology integration (Halevi & Moed, 2012). Despite its growing significance in research, its theories, approaches, and models are rarely applied. External characteristics of scientific big data include objective natural processes and objects, disparate data quantities across fields, and significant levels of uncertainty, dimensionality, and computing complexity. Understanding its internal workings and how to use it in research is crucial. The Chinese government has funded scientific big data research to foster public welfare research and create service centers for scientific big data applications to deal with national security challenges and economic and social growth (Guo et al. 2014).

The impact of big data analytics on enterprises has already been significant, with a range of innovative applications being developed. The possibilities are endless, from online to offline commerce to proactive customer support and IoT-equipped autos. Big data is so disruptive that it's transforming how we approach decision-making across various fields. Big data is used to discover information dissemination patterns, crime, diseases, etc. Location analytics is only one example of how this is being done. And it's evident how big data can completely renovate how we live, effort, and play, given its wide range of applications in fields like technology and science, smart health and well-being, security, and public safety. Companies are increasingly utilizing big data to gather information and build knowledge to achieve social and environmental sustainability. The emergence of this era of open information has prompted a sense of urgency in developing sustainable environmental management. However, despite calls from both internal and external stakeholders, the concept of environmental sustainability in business remains a topic of debate.

Executives may face challenges in meeting the increasing environmental demands and adjusting their operations accordingly. To address these challenges and create sustainable value, scholars and practitioners have suggested utilizing big data as an emerging tool for generating practical ideas. Research studies by authors including Keeso (2014) and Song et al. (2018) provide examples of these concepts.

Schoech et al. (2002) proposed utilizing knowledge management systems to build a collective knowledge repository for social workers that various agencies can access. Nevertheless, challenges in technology and expenses have hindered the implementation of such systems. Integrating information electronically across multiple agencies to establish a harmonized system is known as interoperability.